REMARKS/ARGUMENTS

The recent Office Action (mailed 08/18/2009) indicated that "a complete listing of all of the claims is not present".

Applicant respectfully disagrees that its last amendment (filed 06/17/2009) did not contain a complete listing and refers to pages 3 to 18 of that amendment for the complete listing. All claims (except for claims 2000-20007) were previously withdrawn (as memorialized by Office Action mailed 12/17/2008, paragraph 2). Applicant did not consider renumbering claims 2000-2007 to be "new" claims.

Examiner is thanked for the telephonic discussion on August 31, 2009, wherein he indicated that although he did not issue the recent Office Action, he suggested an alternative method of re-numbering claims 41-48 by identifying them as "new". The current amendment (and its listing of claims) reflects his suggestion.

For Examiner's convenience, set out next are the REMARKS/ARGUGMENTS submitted 06/17/2009 in response to earlier Office Action (mailed 12/17/2008), with the only change that what was identified as "amended (renumbered)" claims 41-48 are now identified as "new (renumbered)" claims.

In addition to the amendments responsive to the Examiner's suggestions, objections and rejections (of Office Action mailed 12/17/2008), discussed below, Applicant made voluntary amendments in new (renumbered) claims 41, 42, 44, 46, and 48 in the nature of small editorial changes involving no new matter.

INFORMATION DISCLOSURE STATEMENT

A copy of the document WO04/00426 was submitted under separate cover.

SPECIFICATION

The title has been amended to – "Communications system of heterogeneous elements".

CLAIM OBJECTIONS

Misnumbered claims 2000-2007 have been renumbered 41-48, as suggested by the Examiner.

The objected-to multiple dependencies and formats of dependencies, have been corrected in the new (renumbered claims.

CLAIM REJECTIONS UNDER 35 USC §112 (SECOND PARAGRAPH)

Claim 2000.

The Examiner thought that "of the same nature" was indefinite. New (renumbered) claim 41, recites "of the same sentient nature". Applicant believes this terminology to be definite for the following reasons.

The common, ordinary meaning of "sentient" is along the lines of "capable of sensation and/or perception". For the purposes of the present application, a network element or station may be capable of sensing phenomena around it. The phenomena may exist at all levels of interaction. An example of a low level of interaction where the nature of sensation is disturbances of the surrounding electromagnetic fields, there may be the capability for sensing electromagnetic (i.e. wireless) signals, and for "understanding" or perhaps processing them into (higher levels) of information for further use (i.e. wireless signals that modulate a message that indicates the passage of time or data/instructions from a central controller). At different levels and in respect of different natures of interaction, there may be capability for sensing motion, temperature, water levels, mechanical tilts, voltages and the number of pop cans remaining in a vending machine, and the entire range of physical attributes found in homes, factories and the environment. In the preceding, the complements of "capability" are incapability and partial capability. More generally, there are thus degrees of, and natures of, sentience of a station.

Support for the amendment to add "sentient" is found in the examples of "time-sentient" stations (see, for examples, para [0089] and paras [0524] to [0552]) and the output of a "deaf" station (i.e. of a station that has only transmitter capability but without receiver capability for wireless signals) can "appear" to come from a ("hearing/speaking") fully (wireless) sentient station and that is because the output from the "deaf station" is "helped" by the services of the "hearing/speaking" station.

Thus, "same sentient nature" means, for the purposes of the present invention, that the output of the second station can be made to appear to have come from the first station, as if the second station had the same "sensing capabilities" as the first station. New (renumbered) claim 41 (corresponding to previously numbered claim 2000) has been amended to reflect the preceding.

Claim 2000.
The Examiner thought that "its" (line 4) lacked antecedent basis. In new (renumbered) claim 41, that term has been deleted.

Claim 2001.

The Examiner thought that the terms "fuller functional station" and "lesser functional station" were indefinite, and that claim 2003 was sufficiently definite in respect of those terms.

Applicant respectfully requests reconsideration for the following reasons.

As explained in the specification (starting at para [0522]):

> "In realistic network implementations....not all parts of a network have identical functionality. Some devices are "smarter" or fuller functional compared with "lesser functional" ones having a reduced feature set. The "lesser functional", relative to the "fuller functional", might have, for examples, less memory and processing capability, transmit-only instead of transceiver capability, and no battery backup.
>
> The heterogeneous nature of realistic networks makes it difficult to achieve certain management functions. For example, if all network elements do not have functionality to be synchronized to Network Time, then it is difficult to observe accurately the status of the entire network (i.e. all elements) at a given (Business-motivated) point in time (e.g. the voltage level at all customer locations at a certain time).
>
> Two examples of heterogeneity and this invention's attempt to "homogenize", are explained below: (1) transmit-only capability in network where other elements have transceiver capability, which affects (upstream) Time-Sentient messages and (downstream) addressing; and (2) not having battery backup in a network where other elements do, which affects the power outage reporting."

The specification continues (at para [0525]) with the two examples where "heterogeneous elements" are described in some detail in terms of their respective capabilities or functionalities.

Reflecting the preceding, new (renumbered) claim 42 recites with more particularity the relative terms of "fuller" and "lesser" in terms of "reduced feature set". Such concept and terminology is well-established in the field of technological devices, ranging from consumers at the hardware level (e.g. a model of a microprocessor having a reduced set of micro-instructions relative to another model having a fuller set) to consumers at the retail level (e.g. a PDA having a set of music features and a "lite" or "junior" version of the PDA having a smaller set). The terminology of "reduced feature set" sets a standard for which there is no difficulty in ascertaining the requisite degree of "lesser" and "fuller" for those in the relevant art.

Claim 2002.

The Examiner thought that the term "CAS message" (line 2) was indefinite, and suggested that the full term "Contextual Addressing Scheme" be recited for the abbreviation CAS, be recited in the claim. New (renumbered) claim 43 has the suggested recitation.

CLAIM REJECTIONS UNDER 35 USC §102

Claims 2000 and 2001 were rejected as being anticipated by the reference, **Mills**. The Examiner thought that in **Mills,** "one of the primary time servers may be interpreted a "first heterogeneous element" and one of the secondary time servers may be interpreted a "second heterogeneous element" and the outputs they produce are Network Time Protocol Messages as described briefly on page 1484, right column, section "III. Network Time Protocol"), comprising the step of providing a service to the second heterogeneous element to make its said first output to be of the same nature as said second output (page 1485, left column, lines 5-10, during synchronization between primary and secondary time servers, the secondary time servers output (i.e. NTP messages with other devices will synchronize to) will be synchronized with the primary time server's output).".

Applicant respectfully requests reconsideration for the following reasons.

Applicant does agree with the Examiner that the description of Network Time Protocol Messages on page 1484, right column, section "III. Network Time Protocol", is indeed "brief". Applicant cannot even find the word "message" in the cited passage, although it is implicit that messages of some nature and content, are contemplated. Without a clarification of the precise nature and content of those NTP messages from the "second heterogeneous element"/"secondary time sever" that the Examiner thinks are "of the same nature as the "first heterogeneous element"/"primary time sever", Applicant cannot meaningfully comment. That said, and on a without prejudice basis pending Examiner's clarification, Applicant notes (1) the statement (on page 1485, lines 2-3), "Since only a single NTP message format is used..." and (2) FIG. 4 (on page 1487, left column), and so concludes *arguendo* that the outputs of both primary and secondary time servers are always of the same nature – each must be in the format of FIG. 4, and the only difference between them can only be the value(s) of certain fields that are used for the relevant processes and nodes to synchronize their clocks to the "external reference source such as timecode receivers".

For the above reasons, Applicant submits that claim 2000 does not read on **Mills**.

Further, in respect of claim 2001, the Examiner thought that **Mills** "discloses the first heterogeneous element is a fuller functional station and said second heterogeneous element is a lesser functional station (page 1485, left column, lines 5-10, primary time servers communicate directly with "external sources, such as timecode receivers", while secondary time servers do not)...the output of

said second heterogeneous element approximates that of a fuller functional station....".

Applicant respectfully requests reconsideration for the preceding reasons (for claim 2000). Since claim 2001 depends on claim 2000, those reasons apply equally to claim 2001. Furthermore (and again, on a without prejudice basis pending Examiner's clarification of a NTP message), Applicant submits *arguendo* there is no concept of "approximating" in **Mills** because all primary and secondary time servers output NTP messages independently of a particular input that primary time servers receive.

For the above reasons, Applicant submits that claim 2001 does not read on **Mills**.

CLAIM REJECTIONS UNDER 35 USC §103

Claim 2002 was rejected as being unpatentable over **Mills** in view of **Carzaniga**. The Examiner thought that **Mills** "does not disclose said lesser functional station is equipped to send a CAS message but cannot receive a CAS message" but that **Carzaniga** "discloses content-based addressing and content based address messages in a networked environment (Abstract)", and that it would have been obvious "to combine the teachings of **Mills** and **Carzaniga** in order to utilize a known addressing format for an existing event notification service i.e. **Mills** network time protocol)."

Applicant respectfully requests reconsideration for the following reasons.

The Examiner considered that the Abstract in **Carzaniga** "discloses content-based addressing and content based address messages in a networked environment". The Abstract asserts its new approach "...performs routing based on the data being transported in a message rather than on any specialized addressing and routing information attached to, or otherwise associated with, the message." The explanation continues (under Introduction, page 1, first para), "Traditional addressing and routing mechanisms....are based on the use of explicit and specialized addressing and routing information attached to, or otherwise associated with, messages. The actual data contained within messages, referred to as *content* or sometimes *payload*), are typically invisible to the transport mechanism and, therefore, are not considered when performing addressing or routing operations". (italics in the original)

In contrast, the present invention performs routing but not based on data (or content or payload, as those terms are meant in **Carzaniga**). As shown in FIG. 2, (idealized) Contextual Addressing Scheme (CAS) message format of [PREAMBLE] [CONTEXTUAL FUNCTION][PAYLOAD][ERROR CORRECTION] the present invention performs routing based on a "Contextual Function" that is discrete and very distinct from "Payload" in its CAS message.

As seen in comparison with FIG. 1, showing (idealized) Traditional Message format of [PREAMBLE] [SOURCE/DESTINATION][PAYLOAD][ERROR CORRECTION]), the "Contextual Function" of the CAS message (of FIG. 2) performs a role that is an improvement (and in fact, Applicant submits, is a radically different improvement) over the "Source/Destination" address of a Traditional Message. But in either message formats, the "payload" is discrete and distinct from the "address" parts of the message.

Furthermore, the present invention contemplates a "payload" that is quite distinct from its CAS addressing scheme. The specification explains (at para [0062]): " ... a typical CAS message has a Contextual Function (having at least Contextual Variables that are related in a way relevant to the sought identity) and a Payload. A CAS Inquisitee Station has its Contextual Attributes (being those Contextual Variables holding its Contextual Values therefor). When the CAS message encounters the Inquisitee Station's Contextual Attributes (and in particular, when the CAS message's Contextual Function is processed by the Station on its Contextual Attributes), that Station is Contextually Addressed thereby."

Then (starting at para [0175]):

> "The term "payload" herein refers to information that the CAS Inquisitor Station, in order to effect the desired complex action, wants the sought CAS Inquisitee Station to have and act on. The payload can be either data to be processed or a function for processing data or both, and herein is called "instructions" for economy of expression.
>
> To illustrate the flexibility and responsiveness of the CAS, three different, examplary types of payloads are explained next for a sought CAS Inquisitee Station.
>
> Type A Payload. The payload is instructions for the sensor-Interaction Module, to measure a specified physical aspect of the operating environment and to send the measurement back to the Base Station.
>
> Type B Payload. The payload is instructions for the effector-Interaction Module, to do a specified act or to stop doing a specified act. As the Contextual Function CF3 fuzzy logic example above showed, in a message with a payload to terminate power, all stations that are unexpectedly drawing too much power and whose customers are credit risky, will have their power terminated immediately. This would be helpful to manage emergency power situations where instant responsiveness is required.
>
> Type C Payload. The payload is instructions to manipulate the Contextual

Attributes with a conventional action (like "put, remove, view and change") in respect of (a) the Contextual Value of a Contextual Variable and (b) the Contextual Variable itself."

The terms "payload" and "Contextual Addressing"of the present application thus understood, Applicant submits that **Carzaniga**'s "content-based addressing" does not read on the "CAS message" of new (renumbered) claim 43.

Respectfully submitted,

Mark Yang
Agent Regn. No. 37,076

8/31/2009